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THE

Inspection of Feeding-Stuffs

IN 1907

IN COÖPERATION WITH THE STATE BOARD OF AGRICULTURE

By FRED W. MORSE, Chemist

NEW HAMPSHIRE COLLEGE
OF
AGRICULTURE AND THE MECHANIC ARTS
DURHAM

ABSTRACT OF FEEDING-STUFF STATUTE.

The state Legislature of 1901 passed an act to regulate the sale of concentrated commercial feeding-stuffs.

The points of the law of most interest to the consumer are concisely stated below.

Kinds of Feed coming within the Law. The law applies to all feeding-stuffs except hays and straws, whole seeds and meals of wheat, rye, barley, oats, Indian corn, buckwheat and broom corn, brans and middlings. The principal feeds coming under the provisions of the law are linseed meals, cotton-seed meals, pea meals, cocoanut meals, gluten meals, gluten feeds, maize feeds, starch feeds, sugar feeds, dried brewers' grains, malt sprouts, hominy feeds, cerealine feeds, rice meals, oat feeds, corn and oat chops, ground beef or fish scraps, mixed feeds and all other materials of similar nature.

The Brand. Each package of feeding-stuff included within the law shall have affixed, conspicuously printed, the following statements:

The number of net pounds contained in the package.
The name or trademark under which it is sold.
The name of the manufacturer or shipper.
The place of manufacture.
The place of business of manufacturer or shipper.
The percentage of crude protein.
The percentage of crude fat.

These statements may be printed directly on the bag or on a tag attached to the package.

Analysis. The secretary of the Board of Agriculture is required to collect and analyze each year at least one sample of each of the brands of feeding-stuffs coming within the provisions of the act, and publish the results, together with related matter, from time to time.

AN INSPECTION OF FEEDING-STUFFS.

By Fred W. Morse

Cattle Foods.

With the exception of cotton-seed meal the different classes of cattle foods which were analyzed during the past season gave results which agreed in nearly every case with the guarantees of the manufacturers. One sample of linseed meal bore a guarantee of 40 per cent. protein while there was found 36.4 per cent. A compilation of published analyses* of linseed meal does not show a single result as high as 40 per cent., while the average is about 33 per cent. Therefore it would seem that the linseed meal in question was overrated.

Gluten feeds have usually been a class with numerous deficient samples, but this year only one out of six showed a deficit.

Cotton seed meal as a class did not make a good showing. Seven out of twelve brands guaranteed 41 per cent. of protein, while but one of the seven yielded it on analysis.

A recent bulletin from Mississippi† gives the legal standards for cotton seed meal established by statute in that state. High grade meal must have not less than 38.6 per cent. of protein. A glance at the table of our results will show that a majority of the brands compare closely with the Mississippi "High Grade," while but two samples yielded the proportion of protein so commonly claimed by the jobbers.

Two samples need especial mention because they represent a class of goods which has not been observed before in this state. The goods were properly tagged and bore plainly printed guarantees of protein and fat as the law requires. The samples were marked respectively Glenwood Brand Cotton Seed Feed, Protein 22 per cent., Fat 5 per cent.; and Sea Island Cotton Seed Meal, Protein 25 per cent., Fat 6 per cent. The chemical analysis showed them

* (Analyses of American Feeding Stuffs, Jenkins and Winton.)
† Bull. 104, Miss. Agr. Expt. Sta.

to be practically equal to their claims in each constituent. Therefore no fault could be found with them on that score.

The price of these goods was, however, of decided interest, when compared with that of standard cotton seed meal. Eight samples of standard meal contained from 38 per cent. to 42 per cent. protein and from 8.7 per cent. to 10.5 per cent. of fat. The retail prices were $1.60 and $1.65 per 100 pounds. The Glenwood and Sea Island brands retailed for $1.50 per 100 pounds.

Crude fiber was determined in the Glenwood sample, and was found to be 21 per cent. Standard cotton seed meal varies between 5 and 7 per cent. for fiber. It is plain, therefore, that the two brands in question, besides possessing but three-fifths as much protein and fat, contain about three times as much indigestible matter as standard meal, while they are retailed at nine-tenths the price of the best. Or to put it in another way, when standard meal containing 39 per cent. protein and 9 per cent. fat sold for $1.60 per 100 pounds, one pound of those nutrients cost three and one-third cents, while in the Glenwood brand, containing 22 per cent. protein and 5 per cent. fat, at $1.50 per 100 pounds, a pound of those nutrients cost five and one-half cents. *These low grade materials cost too much to be economical.*

Another sample of cotton seed meal, among those collected in the inspection, requires notice because it was a positive fraud. It bore the tag and guarantee of a standard article and was retailed at the usual price of $1.60 per 100 pounds. The meal was even poorer than the Glenwood and Sea Island. The analysis revealed 19 per cent. protein, 5.5 per cent. fat and 22 per cent. fiber. Since cotton seed hulls contain over 40 per cent. fiber, this meal must have had about two-fifths of its weight made up of hulls, instead of being a pure meal. They were finely ground and not very noticeable, but imparted a brown color to the meal, and when a portion of it was placed on the surface of a glass of water there was an immediate separation of the heavier hulls by settling. The same brand with similar results has been reported also from Maine and Vermont.*

* Bull. 142, Me. Agr. Expt. Sta. Bull. 131, Vt. Agr. Expt. Sta.

These are the first instances for several years of such marked departures from the old standards of cotton seed meal. Since standard meal will probably be even higher this fall and coming winter than last year, there will be an effort to push the low grades because of the lower price. Buyers of grain should scrutinize both tags and quality keenly before completing a purchase, as it is natural to charge all that the market will bear for an inferior article, even if there is no fraudulent substitution of tags or dishonest claims.

Molasses is rapidly gaining in favor as a food for livestock and this year we have had five different brands of goods containing mixtures of grain, coarse fodder and molasses. They have yielded the analytical results claimed for them and their guarantees can thus be depended on.

The Maryland experiment station* has found that molasses improves the digestibility of both grain mixtures and coarse fodders, therefore if the materials are of good quality, molasses feeds should form a welcome addition to our list of commercial feeding-stuffs. The Vermont experiment station† has recently pointed out that the molasses feeds collected in that state yielded an abundance of weed seeds, which indicates that inferior material is used in their makeup.

While not as convenient, it may prove more economical to buy the molasses and use with home grown fodder, since in that way one may guard against the introduction of foul weeds.

As a rule the so-called "mixed feeds" are pure wheat products; but there are a few brands which contain finely ground corn cobs mixed with wheat bran. One such brand is in our list, the "Blue Grass" mixed feed. It bore a tag correctly describing it and it was nearly equal to its guarantee, but it was sold at the same retail price as a high grade mixed feed.

* Bull. 11 , Md. Agr. Expt. Sta.
† Bull. 131.

COMPOSITION OF COMMERCIAL FEEDING-STUFFS, 1907.

Cattle Foods.

Brand.	Manufactured by	Protein.		Fat.		Cost per 100 pounds.
		Guar.	Found.	Guar.	Found.	
Cotton Seed Meal.						
Cotton Seed Meal	Buckeye Cotton Oil Co	39.	42.5	7.85	9.65	$1.65
Cotton Seed Meal	Consumer's Cotton Oil Co	.....	39.60	.....	9.78	1.65
Dixie Brand Cotton Seed Meal	Humphrey, Goodwin Co	41.	41.07	9.	10.51	1.65
Eagle Brand Cotton Seed Meal	Roberts-Ruffin Co.	41	38.9	9.	9.28	1.60
Old Gold Brand Cotton Seed Meal	T. H. Bunch	41.	36.90	9.	10.08	1.60
Owl Brand Pure Cotton Seed Meal	F. W. Brode & Co	41	38.62	7	9.24	1.60
Phœnix Brand Cotton Seed Meal	D. L. Marshall & Co	41	38.00	.....	9.80	1.65
Prime Cotton Seed Meal	Hunter Bros. Milling Co.	38.50	38.44	8.	8.68	1.60
Star Brand Cotton Seed Meal	J. Lindsey Wells Co	41	39.60	9	8.78	1.65
Prime Cotton Seed Meal	Kaiser & Brown	41	18.07	9	5.55	1.60
Glenwood Brand Cotton Seed Feed	D. L. Marshall Co	22	21.32	5	5.12	1.50
Sea Island Cotton Seed Meal	Florida Cotton Oil Co	25.30	24.13	6.	8.13	1.50
Linseed Meal.						
Cleveland Flax Meal	American Linseed Co	36	34.40	1	3.75	1.70
Linseed Oil Meal	American Linseed Co	40	36.24	3.	3.50	1.65
Distiller's and Brewer's Grains.						
Ajax Flakes	Chapin & Co	33	32.56	12	12.71	
Biles' XXXX Fourex Grains	J. W. Biles & Co	33	31.75	11	11.01	1.50
Biles' Ready Ration	J. W. Biles & Co	24	23.69	7	7.38	1.50
Distiller's Dried Grains	Husted Milling Co	15	15.37	4.	5.30	1.25
Gluten Feeds.						
Bay State Gluten Feed	J. E. Soper & Co	24	22.93	3.	2.62	1.50
Globe Gluten Feed	Glucose Sugar Refining Co.	26	27.25	2.50	3.90	1.50
Jenks' Gluten Feed	Huron Milling Co	27	28.25	7.5	9.93	1.50
New England Gluten Feed	J. E. Soper & Co	25	20.63	3	2.60	1.50
Queen Gluten	Corn Products Ref. Co	20	27.20	2	3.35	1.50
Warner Gluten Feed	Corn Products Ref. Co	24	27.08	2.50	3.63	1.50
Hominy Feed.						
Blue Ribbon Hominy Chop	J. E. Soper & Co	11	11.56	8	7.65	1.30
Evans' Hominy Feed	Evans Milling Co	10	11.25	7.5	10.42	1.25
Husted Hominy Feed	Husted Milling Co	9	9.21	7	4.32	1.25
Niagara White Meal	Chapin & Co	10	10.87	7.	8.50	1.30
White Hominy Meal	R. J. Hardy & Sons	10.	11.06	9.	7.52	1.30
Wheat Feed						
Blue Grass Mixed Feed	A. Waller & Co	11.50	10.53	3.19	2.79	1.35
Monarch Ground Wheat Feed	F. W. Stock & Son	.....	18.25	.....	6.18	1.35
Molasses Feed.						
Green Diamond Sugar Feed	Chapin & Co	10.5	17.81	3.5	4.26	1.25
Molac Dairy Feed	Quaker Oats Co	16	14.94	3	4.65	1.25
Molac Horse Feed	Quaker Oats Co	11	14.37	3.	3.68	1.25
Sucrene Dairy Feed	American Milling Co	16.50	18.42	3.50	5.84	1.25
Sucrene Horse Feed		10.50	15.40	3.50	5.27	1.40
Miscellaneous Feeds.						
De-fi Corn and Oat Feed	H.-O. Co	8.30	9.07	3.	3.82	1.25
Extragood Stock Feed	Griswold & Mickinnon	7.63	7.81	2.07	3.22	1.45
H. O. Algrane Milk Feed	H.-O. Co	14	14.25	4	3.95	1.40
Horse Feed	Buffalo Cereal Co	12.	11.94	4.50	4.68	1.35
Husted's Stock Feed	Husted Milling Co	8.	8.82	4.	5.00	1.35
Pearl Horse and Cow Feed	Flint Milling Co	10	10.30	6	5.04	1.45
Protena Dairy Feed	Ralston Purina Co	20.	19.85	3.5	4.11	1.35
Quaker Dairy Feed		12.	17.75	3.	3.98	1.30
Schumacker's Stock Feed	American Cereal Co	12.	10.32	5.	3.44	1.35
Victor Corn and Oat Feed	American Cereal Co	7.50	7.43	3.	2.79	1.25
Wirthmore Stock Feed	Charles M. Cox & Co	10	10.36	4.	7.32	1.35
Blatchford's Calf Meal	J. W. Barwell	25.	26.75	5.	4.72	2.50
Blatchford's Sugar and Flaxseed	J. W. Barwell	27.	23.78	10.	12.30	4.00

Poultry Foods.

The number of poultry foods on the market has increased considerably since our last bulletin, especially the grain mixtures. The analyses of the cereal foods compare well with the guarantees in almost every case. The animal products, as a class, vary considerably from their stated composition, some being much in excess of the guarantees, while others are deficient.

Five brands of animal meal and beef scraps were 5 per cent. or more low in protein, although in some of these instances there was a large excess of fat to offset the deficit.

It would be well for the practical poultry man to compare the prices of the cereal poultry foods with the prices of standard grains and by-products. Nearly every poultry food is higher in price than linseed meal, which is always at the top of the list of standard cattle foods, while if the analyses are compared, some of the poultry foods will be found to belong in the same class with the medium-priced dairy mixtures.

COMPOSITION OF COMMERCIAL FEEDING-STUFFS, 1907.

Poultry Foods.

Brand.	Manufactured by	Protein.		Fat.		Cost per 100 pounds.
		Guar.	Found.	Guar.	Found.	
Grain Mixtures.						
American Poultry Feed	Quaker Oat Co	12	14.40	3.50	3.97	$1.75
Blatchford's Fill Basket	J. W. Barwell	33	31.00	10	9.68	3.00
Cypher's Chick Food	Model Milling Co	10.54	10.69	3.4	3.62	2.50
Every Morning Mash Feed	Ross Bros. Co	12	12.64	3.50	3.92	1.50
Greene's Chicken Feed			10.81		8.19	2.50
H.-O. Co.'s Chick Feed	The H.-O. Co	12	11.06	3.	3.19	2.50
H.-O. Co.'s Chick Feed	The H.-O. Co	12	11.50	3.	3.31	2.50
H.-O. Co.'s Poultry Feed	The H.-O. Co	17	17.19	5.50	6.75	1.75
H.-O. Co.'s Poultry Feed	The H.-O. Co	17	17.19	5.50	6.16	1.85
Husted's Chick Feed	Husted Mlg. & Elev. Co	12	12.12	4.	4.19	2.00
Husted's Laying Mash	Husted Milling Co	15	15.69	3.	5.71	1.70
*Page's Perfected Poultry Food	Carroll S. Page	24.	23.69	8.	6.37	2.90
Pan-American Chick Feed	Whiting-Eckstein Co	9.	16.94	3.	4.84	2.50
Poultry Feed	Buffalo Cereal Co	17.	17.20	5.	5.65	1.75
Wirthmore Chick Feed	St. Albans Grain Co	11.	10.81	3.	2.65	2.00
Wirthmore Mash Feed	St. Albans Grain Co	20	17.72	3.	5.79	1.80
Wonder Poultry Feed	Flint Mill Co.	22	17.11	4.	6.29	1.75
Wyandotte Brand Chick Feed	Ross Bros. Co	8.25	8.94	2.25	3.62	2.25
Animal Meal.						
Beach's Meat and Bone Meal	Beach Soap Co	26	34.40	10.	11.70	2.75
Bowker's Animal Meal	The Bowker Co	30.	35.62	5.	11.62	2.00
Bradley's Superior Meat Meal	Am Agr. Chem. Co	30.	54.93	8.	13.22	2.25
Bone and Meat Meal	Hinckley Rendering Co	35.	43.17	8.	13.39	3.00
Meat Meal	Parmenter & Polsey Fert. Co.		39.40		13.04	2.00
Swift's Lowell Bone and Meat Meal	Swift's Lowell Fert. Co	40.	35.53	8.	17.53	2.00
Beef Scraps.						
Armour's Beef Scraps	Armour Co	55	49.14	12	29.4	3.00
Beef Scraps	Am. Agr. Chem. Co	40	46.42	15	15.38	2.25
Breck's Ground Beef Scraps		50	40.56	15	17.5	2.50
Ground Beef Scraps	Beach Soap Co	40	38.69	20	16.50	2.40
Beef Scraps	Hinckley Rendering Co	40	33.08	10	12.11	2.50
Beef Scraps	Hinckley Rendering Co	40	31.32	10	13.20	2.45
Swift's Lowell Beef Scraps	Swift's Lowell Fert. Co	40	41.59	15.	14.94	2.75
Pure Beef Scraps	Whitman & Pratt Rend. Co.	35	40.98	10.	13.40	2 50
Bone Meal.						
Beach's Cracked Bone	Beach Soap Co	25	23.25	5.	3.44	2.00
Marsh's Pure Bone Meal	George E. Marsh & Co		14.13		10.37	2.00

*Sunflower seeds and cracked bone.

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